

Mr. Giffard also exhibited a number of parasitic Hymenoptera of the Family *Encyrtidae*, sub-family *Eupelminae*, which had been bred by him, on several occasions during the past two years, from hollow twigs of native trees containing the nests of species of *Nesoprosopis* (*Aculeate Hymen.*). There has as yet been no opportunity to name the Encyrtids exhibited. The exhibit included portions of the twigs above referred to, showing not only the remnants of the nests of the *Nesoprosopis* but also in two instances remnants of the nests of species of *Odynerus*.

Mr. Kotinsky related his recent observation of vast numbers of caterpillars in a grain warehouse in Honolulu. These caterpillars were later definitely determined to be *Ephesiodes gilvescentella* Ragonot. He was certain of the identification because it corresponds in all details with Meyrick's description in the Fauna, who claims to have compared his specimens with Ragonot's types. He stated that to his knowledge the insect is not recorded in economic literature. It is commonly found in grain and meal coming from the Pacific Coast, where it is doubtless a common granary and mill pest. *Ephestia kuehniella* on the other hand, which was reported as a feed pest from California and elsewhere on the mainland, does not seem to occur here. It would appear from these facts that *E. gilvescentella* has probably been mistaken for the Mediterranean flour moth.

Mr. Swezey exhibited a collection of Hawaiian Phycitidae, and made some remarks on their habits and life history.

PAPER READ.

Some Remarkable Australian Hymenoptera.

BY R. C. L. PERKINS.

In this paper I have dealt with only a small number of species of Australian Hymenoptera, but all of them are of extreme interest, either because they are altogether new generically, or are new to Australia as genera, or they are remarkable for peculiarity of habits or for other special reasons.

I will first briefly review some of the most interesting species.

Of the bees I have here described two new genera, one of which, *Palaeorhiza*, is evidently represented by many species

in Australia. Several have been described as belonging to the genus *Prosopis*, in spite of the fact that the most superficial examination shows that these insects have an acute lanceolate tongue. Hitherto no connecting link between the blunt-tongued and acute-tongued bees has been recorded, but in *Palaeorhiza* we have a form, which, except for the structure of the tongue, would be assigned to the section of Obtusilingues. It will therefore be obvious that this section and the Acutilingues can no longer be maintained as of great importance, since *Palaeorhiza* must always be associated with *Prosopis*, as the male genital characters, and all other ones, save the lingual, clearly show. It may be advisable, however, to consider the genus as representing a family distinguished from Prosopidae by lingual characters only. In this connection, however, it is only proper to add that the Australian genus *Meroglossa*, associated by Smith with the blunt-tongued bees, without remark, has an acute tongue, being so figured and described by that author. Ashmead also includes *Meroglossa* in his tables, as being blunt-tongued, without any remark whatsoever. In these Australian genera we therefore have a distinct lead from the blunt to the acute-tongued section of the bees.

The other genus here described by me as *Pachyprosopis* is another of the series of remarkable blunt-tongued bees, in which Australia is enormously rich. Few, I think, seeing it alive would take it for a bee, since it superficially has rather the appearance of a large-headed Crabronid or Pemphredonid.

In the wasps I have described a new genus *Macrocalymma*, which appears to me very remarkable. This species is extant in the British Museum with the name *Discoelius smithianus*, Sauss. attached. I have not been able to find any description of the species in de Saussure's writings.

Another genus *Ischnocoelia* is represented, by several species apparently, in the British Museum, but they have not been described. The *Montezumia* is not only interesting from the fact that the genus is unrecorded from Australia, but more so from the great Acarid chamber in the propodeum of both sexes, a new situation for such a structure, the chamber found in the bee genus *Koptorthosoma* and that of a Mexican wasp, *Odynerus*, being abdominal.

The remarkable Dryinid, *Harpagocryptus*, a parasite of small crickets, is a most anomalous insect. It is clearly allied to the Central-American *Olixon* of Cameron, referred by him to the Braconidae, but rightly removed by Ashmead to the Bethyloid group.

PALAEORHIZIDAE (? Meroglossidae).

Palaeorhiza gen. nov.

General appearance much like that of some brightly metallic Australian *Prosopis*, members of which genus (s. l.) it also considerably resembles in many points of structure. In the several species known to me the scape of the antennae in the male is cylindrical and not at all dilated. Labrum simple, transverse, ciliated at apex; mandibles with two grooves, bidentate in the male, the inner tooth more or less obscure; tridentate at apex in the female. Ligula lanceolate, acuminate; labial palpi four-jointed, formed like the maxillary palpi, but the joints all shorter, subequal; maxillary palpi six-jointed, moderately long, the joints not differing much in length, the four apical ones more slender than the preceding and themselves slightly decreasing in length to the apex, their form elongate and subclavate. Anterior area of propodeum smooth, moderately large, more or less triangular in shape, well marked off by the totally different sculpture of adjoining parts, but not enclosed. Wings with the stigma as well developed as in *Prosopis*; two cubital cells, the first much longer than the second, the latter receiving both recurrent nervures, neither being interstitial; transverse median and basal nervures interstitial or almost so. Anterior tarsi of female with the arrangement of peculiar curved hairs for sweeping pollen towards the mouth, as in the industrial *Prosopis*, or more strongly developed than in some species of that genus. Male often with the two or three terminal exposed ventral segments with dense clothing of hair; seventh ventral segment produced on each side into delicate lateral processes, affording good specific characters; eighth ventral segment simply produced in the middle in the species examined by me. Genital armature like that of many *Prosopis*, the stipites simple, without lacinia, pilose, the sagittae extending slightly or considerably behind these, curved downwards towards the apex and sometimes apically compressed; the armature evidently affording good specific characters.

Type of the genus *Prosopis perrividis* Cock.

In the event of the genus *Meroglossa* proving to be allied to *Palaeorhiza* the family would naturally be called *Meroglossidae*.

PROSOPIDAE.

Pachyprosopis gen. nov.

Head quadrate, of enormous size, fully as large as or larger in dorsal aspect than the mesonotum, ocelli in a triangle with very wide base, the hinder ones closer to one another than to the distant occipital margin. Eyes reaching base of mandibles, clypeus very short and trans.

verse, its hind margin very wide. Labrum when fully seen very large, comparable in size with the clypeus, having a large median basal tubercle, which is emarginate in front, and in front of this a strongly raised median longitudinal carina. Mandibles with well-developed apical tooth and an inner short blunt one. Tongue much as in *Euryglossa*. Maxillary palpi 6-jointed, two basal ones stout, the third more slender and elongate, but stouter than the three following, which are subequal in length, the two first of these being clavate, or elongate-subtriangular. Labial palpi shortish, 4-jointed, the terminal slender. Pronotum not visible from above, the head being adapted to the mesonotum, post-scutellum emarginate in front, as long as the very short propodeum in dorsal aspect; anterior area of the latter defined by difference in sculpture. Hairs of anterior tarsi regularly arranged, but less dense than those of *Prosopis*, *Stilpnosoma* and *Euryglossa*, and with those on the outer side peculiarly flattened. Stigma about as much developed as in *Euryglossa*, radius bent almost at a right angle, at end of first abscissa, second submarginal cell consequently very high, the second transverse cubitus twice as long as its lower side, its superior apical angle very acute. First recurrent nervure received by first submarginal cell a little before the apex, the second recurrent received by the second submarginal equally a little before its apex. Discoidal cell beneath the second submarginal also very narrow and high, diamond-shaped, but with the upper angle truncate. Hind tibiae spinose, as in females of *Sphecodes*. Abdomen truncate at base and impressed on the truncate part.

A very remarkable blunt-tongued bee, of which there are allies in Australia of much more minute size, but these differ in characters, which may prove generic, or may necessitate modification of the characters given above.

Pachyprosopis mirabilis sp. nov.

Black, mandibles, except tips, labrum, antennae, legs (except coxae trochanters and greater part of femora) together with the abdomen ferruginous or in parts more yellow. The clypeus and a wide triangle above it is bright yellow. Front femora black on the basal half, the other femora pale only at their apices. The head and thorax have a metallic tint, blue or green.

Head rather shining as compared with the thorax, the clypeus sparsely punctured, the front with very fine remote punctures, and the surface between with excessively dense microscopic sculpture. Grooves along the inner orbits deep, extending from just above the line of insertion of the antennae not quite to the top of the eyes. Thorax above very dull, minutely, but distinctly, remotely punctured. Post-scutellum more densely, but less definitely punctate. Anterior area of the propodeum impunctate, bare, with the general dense surface sculpture only, at the sides of this rougher and pilose. Abdomen dull with dense surface sculpture, but not punctured, its basal truncation pilose. Female, length 5 mm.

Hab. Australia, N. Queensland.

EUMENIDAE.

Macrocalymma gen. nov.

Ligula long, slender, deeply cleft at apex, the paraglossae with horny pilose tips. Labial palpi 3-jointed, two basal joints elongate and subequal, the third short, about half as long as the second. Maxillary palpi short, four-jointed, the first thickest and longer than the second, which in some aspects is subclavate, the third very slender and much longer than the small apical joint. Middle tibiae with two spurs, the claws of tarsi bifid at apex. Wings with the second cubital cell much contracted above and receiving both recurrent nervures. First abdominal segment pedicellate, very slender on the basal half (or less), behind this subquadrate in dorsal aspect, this subquadrate apical part rounded in front, and slightly concave behind, the posterior lateral angles prominent; second segment with a very short neck or basal constriction, which is smooth and shining. To these characters it may be added that the mandibles are short, their apical margin oblique and quadridentate, the clypeus widely subtruncate or very faintly emarginate at apex, not at all pointed. The tegulae are greatly developed, their apices reaching back slightly behind the posterior margin of the scutellum; the propodeum has trenchant lateral submembranous carinae, which posteriorly form a projecting angle (but rounded off) on each side.

This genus may be known at once from any of those with two spurs on the middle tibiae, cleft-tarsal claws and similar neuriation, by the distinctive characters of the mouth-parts.

Macrocalymma smithianum sp. nov.

Head black, the clypeus, a spot between the antennae, one behind the eyes and a line on the scape in front, yellow. Antennae with the first two joints, sometimes also some of the following, the modified apical ones, and the flagellum beneath, ferruginous or reddish. Pronotum obscure red, with a yellow line in front, the tegulae reddish with pale margin and apex; a spot on each side of the post-scutellum and the lateral submembranous carinae of the propodeum pallid and yellow; a spot beneath the tegulae red or yellow. Legs ferruginous, the hind femora and sometimes the base of the intermediate ones more or less, the coxae and sometimes the middle and posterior tarsi black or blackish; sometimes the posterior tarsi only are fuscous. Abdomen black, more or less densely covered with golden tomentum; first segment with the apical dilated part dull red, more or less distinctly yellow-margined posteriorly; second segment with a yellow or reddish yellow apical band; third with a reddish band, and this and the following segments with pallid apical margins.

Head with the vertex subquadrate, seen in profile sharply angulated posteriorly behind the eyes, antennae terminating in a hook. Head and thorax closely and coarsely (more or less rugosely) punctured, the propodeum coriaceous and with much finer and less distinct punctures. Wings conspicuously clouded along the costal margin, elsewhere smoky or yellowish-tinged and hyaline, the stigma dark brown, its apical margin obliquely truncate. Basal abdominal segment closely punctured; second much more finely and sparsely, the surface shining

when denuded of tomentum; beneath, it is conspicuously flattened or subdepressed behind the middle, rather strongly punctate and the surface between these punctures is shining and finely, but conspicuously punctulate. Length to apex of second abdominal segment 8-9 mm. Described from males only.

Hab. Australia; common in middle Queensland.

Ischnocoelia gen. nov.

Head in front view subrotundate, mandibles shortish (not at all like those of *Eumenes*) with four terminal well developed teeth; clypeus widely truncate or slightly rounded at apex; maxillae with very elongate galea, attenuate to the tip, the maxillary palpi very short, three-jointed, the three joints together hardly as long as the second joint of the three-jointed labial palpi, of which the two basal joints are subequal and elongate, the third hardly half as long as either of these; ligula long and slender, deeply cleft at the apex, the bifurcations pilose, as also a portion of the ligula behind these, the intermediate space bare. Wings with the second cubital cell narrowed to an angle above, the sides meeting at the radius, the second recurrent nervure received nearly at the middle of this cell on the cubitus, the first recurrent between this point and the lower basal angle of the cell, but nearer the latter. Middle tibiae with two well-developed calcaria, the tarsal claws toothed beneath near the middle. Abdomen pedicellate, the first segment sublinear throughout, about four times as long as its greatest width, widening slightly, but not abruptly, at about its basal third, and continuing of nearly equal width on its apical half; second segment campanulate with a very short neck at base. Female.

From the foregoing characters it is clear that this insect in some respects is intermediate between the subfamilies *Ischnogasterinae* and *Discoelinae* as defined by Ashmead, but I consider these groups at the most as of tribal value.

Ischnocoelia xanthochroma sp. nov.

Black with orange and reddish markings, the red and yellow colors more or less shading into one another, so that except in certain parts they may be generally designated as orange. Head black, the antennae ferruginous, but black or dark above on the apical half of the flagellum; the clypeus, a more or less triangular spot above this, emarginate posteriorly, the sinus of the eyes, the sides of the head behind these, as well as the vertex posteriorly except in the middle, orange. Pronotum, tegulae, scutellum, propodeum (excepting the sides and sometimes the base medially) and a large area on the mesopleura orange; legs yellow, the hind pair more ferruginous, their coxae mostly black, the middle ones nearly wholly reddish, but variable in color. Wings hyaline, yellow along the costa, as also the stigma. Neuration generally dark, but the veins yellow or brownish towards the base of the wings, as also the costa to the stigma.

Head incrassate, densely and somewhat coarsely subrugosely punctured; mesonotum somewhat shining, punctured like the head or slightly more coarsely, and with dense minute punctures between the

large ones; post-scutellum coarsely rugose-punctate, and seen from in front with a distinct lateral angulation on each side and a median one still more prominent; propodeum shortly pilose, rounded at the sides, and with a deep median impressed line. Abdomen with sericeous pile, the surface having an excessively minute and dense microscopic puncturation, the pedicel only with remote, larger punctures, but even these are fine and shallow. Length to the apex of the second abdominal segment 9-10 mm.

Hab. Australia, middle Queensland, not rare.

Obs. In North Queensland a variety is found, in which all the yellow markings are rufous, those of the occiput connected on the vertex behind the ocelli, the abdominal pedicel entirely rufous. I see no structural difference to distinguish this form.

Montezumia australensis sp. nov.

Black, with orange markings, those on the head partly bright yellow.

Male; a spot on the mandibles, the clypeus, a spot above it, a line in the sinus of the eyes, yellow; front of scape, a short line or spot on the posterior orbits, sometimes one on the upper margin of the eyes, more orange colored; flagellum more or less ferruginous beneath towards apex, the apical hook sometimes more obscure than the preceding joints. A band on the pronotum, the tegulae, sometimes two spots on the scutellum and two on the post-scutellum, or the latter almost entirely, and a mark on each side of the propodeum posteriorly, orange; legs mostly ferruginous, with the coxae and the basal part of the femora (the posterior ones for half their length or more) black. All the abdominal segments with apical orange bands.

Clypeus distinctly, but not deeply emarginate, feebly punctate; the front of the head densely rugosely punctured. Whole thorax, including the propodeum, densely rugosely punctured, the surface, which is more or less shining between the punctures, bearing a very minute microscopic, but quite distinct, puncturation. Propodeum with a deep round fossa or chamber above the abdominal articulation; on each side of the chamber is a curved carina more or less pale colored, and in lateral view forming a projecting angle of the propodeum; a shorter curved carina external to this forms with it a less deep cavity on either side of the median chamber, and these subsidiary cavities, like the latter, are often filled with acari. Wings hyaline, more or less infusate or yellowish tinged, and more deeply yellow or brown along the costa, the stigma brown, the first recurrent nervure received before, the second after, the middle of the second cubital cell, the lower or cubital side of this cell being about three and a half or four times the length of its upper or radial side. Basal abdominal segment pedicellate, the pedicel elongate, but shorter than the bell shaped portion of the segment behind it, which is closely and rather strongly punctured and has a median impression; second segment much more finely, but distinctly, and for the most part closely punctured, the surface coriaceous or microscopically shagreened between the punctures; beneath, its basal transverse sulcature is smooth, behind which the segment is considerably, but not vertically, raised, as viewed with the ventral side upwards. Length of male to apex of second abdominal segment about 10 mm.

Female usually like the male, both sexes varving a little in the markings.

Hab. Australia; very abundant in middle Queensland.

DRYINIDAE.

Harpagocryptus gen. nov.

Head transverse in dorsal aspect, produced in the middle in front, large, wider than the thorax; the occiput arcuately emarginate; ocelli very feebly developed, the anterior one almost or entirely aborted. Antennae twelve-jointed, elongate, filiform, all the joints long, excepting the small pedicel. Mandibles pointed at the tips to form a large acute tooth, internal to which are three very minute teeth on the edge. Maxillary palpi long, six-jointed, the first joint short and stoutish, the second very elongate, twice as long as the first, slender at the base, clavate; third shorter than second, moderately stout, subparallel-sided; fourth, fifth and sixth slender, elongate, subequal. Labial palpi four-jointed, the first elongate, second short and wide, subtriangular in some aspects, third and fourth elongate, slender, subequal. Labrum distinct, clypeus well-defined. Prothorax large and long, narrowed posteriorly, and there emarginate; mesothorax very small, tongue-shaped; tegulae distinct, front wings narrow, strap-like, reaching to the posterior face of the propodeum, hind wings wanting. Propodeum very long, its superior posterior angles produced into a strong acute tooth on each side. Front femora very stout, intermediate less strongly so, claws short, stout, pulvilli large, tarsi densely pubescent beneath. Abdomen elongate ovate, second segment much the longest.

The general appearance of this insect is ant-like in the extreme and it would almost certainly be passed by in the field, by any one, who was not collecting ants.

Harpagocryptus australiae sp. nov.

Black or blackish fuscous, clypeus, labrum, mouth parts, mandibles except the teeth, antennae except several of the apical joints, and the extreme apices of the other flagellar joints, the front and middle tarsi excepting the claw-joints, brownish yellow or testaceous. All the coxae and trochanters in part at least, and the front tibiae more or less brownish yellow, rest of legs darker, brown or pitchy. Tegulae pale testaceous.

Whole insect clothed with a whitish-fuscous pile and having an excessively minute and dense sculpture, which under high powers of the compound microscope appears as a dense reticulation of fine lines. Scutum and scutellum of mesonotum distinguishable in certain aspects, and of about equal length. Calcaria of middle tibiae of about equal length, half as long as the first tarsal joint, which is nearly twice as long as the elongate second one.

The antennae are long and slender, much longer than the head and thorax together, the scape is stout and about as long as the first funicle joint, which is decidedly shorter than the next, while those following are all subequally elongate, many times as long as thick.

Towards the tips of the antennae, the joints become dark-colored and slenderer, so that the antennae are attenuate apically. The pedicel is very short, compared with the other joints, but it is evidently longer than wide. Length about 4 mm.

Hab: Australia, Queensland; larva forming a sac on the sides of the abdomen of small crickets (Trigonidiidae).

Obs. Although I have referred this insect to the Dryinidae, largely on account of its larval habits, the larval sac being of the same form as that of *Aphelopus*, which likewise has non-chelate tarsi, yet its twelve-jointed antennae might be held sufficient to exclude it from this family.

LIST OF OFFICERS FOR 1908.

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